What is claimed is:

1.   An automated method for conducting buy and/sell transactions over a network for a non-commodity material or item that can have differing chemical and physical and/or electrical characteristics, comprising:

5   a plurality of sellers each providing to the network physical and chemical and/or electrical characteristics of a quantity of the non-commodity available for sale and a cost of the available non-commodity, creating a database of the non-commodity including the different physical and chemical characteristics for each non-commodity available;

10   a buyer providing to the network a performance simulation model of a chemical, mechanical, or electrical process with equipment currently in operation or intended to be in operation and with a desired amount of the non-commodity for use in the process, the performance simulation model being able to estimate the production cost and operating characteristics of the process based on chemical and

15   physical and /or electrical characteristics of a non-commodity material or item used in the process;

the buyer also providing a desired maximum cost of operating the process, or maximum production cost of material or goods resulting from the process, or desired operating characteristics of the process that are dependent upon the non-

20   commodity material or item; and

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estimating the cost of operating the process or producing goods from the

process for at least some of the different non-commodities from the database of

different non-commodities in the performance model to make a comparison of the

at least some of the different non-commodities to determine which, if any, of the at

5 least some of the different non-commodities are within the maximum process cost;

providing the buyer with a list of non-commodities that when used as input

for the process are within the desired maximum process production or operating

cost, or provide certain operating characteristics.

utilizing a database and standard datamining techniques to record

10 performance of the process with the selected non-commodity item, and applying

this information in the formulation of a request-for-proposal for future purchases

of non-commodity materials or items.

2. The automated method of claim 1 further comprising providing the

buyer with a list of non-commodities that provide for the lowest process

15 production or operating cost, or achieving certain operating characteristics.

3. The automated method of claim 1 further comprising determining if

blends of different non-commodities from different sellers achieve a lower process

production or operating cost than each of the different non-commodities alone, or

achieving certain desired operating characteristics, and if so, providing the buyer

20 or at least some of the sellers with a list of which blends of non-commodities that

achieve the lower process production or operating cost or provide the desired operating characteristics.

4. The automated method of claim 1 wherein the plurality of sellers provide to the network a current location of each non-commodity and the buyer provides to the network a location of the equipment and wherein the estimation of process production or operating cost utilizing each non-commodity includes an estimated cost of transportation from the current location of each non-commodity to the location of the equipment.

5. The automated method of claim 1 wherein the plurality of sellers also provide to the network a current location of each non-commodity, an available amount of each non-commodity, a period of availability for each non-commodity and a cost of each non-commodity at the current location of each non-commodity.

6. The automated method of claim 1 wherein the network is the Internet.

7. The automated method of claim 1 wherein the non-commodity is selected from the group consisting of: coal for use in steam electric equipment for power generation, crude oil for use in refining of gasoline, electronic components for use in engineering circuitry design and paper pulp for use in paper manufacture.

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8. The automated method of claim 1 wherein the buyers also provide the network with a desired source of the non-commodity or provide the network with an indication of no preference as to the source of the non-commodity.

9. A system for conducting buy and sell transactions over a network for
5   a non-commodity that can have differing chemical and physical characteristics, comprising:

means for a plurality of sellers to each provide to the network physical and chemical characteristics of a quantity of the non-commodity available for sale and a cost of the available non-commodity, creating a database of the non-commodity
10   materials or items including the different physical and chemical and electrical characteristics for each non-commodity available;

means for a buyer to provide to the network a performance simulation model of a process utilizing equipment currently in operation or intended to be in operation and also utilizing a desired amount of the non-commodity for use in the
15   process, the performance simulation model being able to estimate the production or operating cost and the operating characteristics of the process based on chemical and physical characteristics of a non-commodity used in the process;

means for the buyer to also provide a desired maximum production or operating cost of the process, or a range of desired operating characteristics; and

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means for estimating the production or operating cost of the process

utilizing at least some of the different non-commodities from the database of

different non-commodities in the performance simulation model to make a

comparison of the at least some of the different non-commodities to determine

5   which, if any, of the at least some of the different non-commodities are within the

maximum process cost;

means for providing the buyer with a list of non-commodities that when

utilized in the process provide for the desired maximum process production or

operating cost, or provide for a range in desired operating characteristics.

10   10.   The system of claim 9 further comprising means for providing the

buyer with a list of non-commodities that when utilized in a process allow for a

lowest process production or operating cost, or achieve a desired range of

operating characteristics.

        11.   The system of claim 9 further comprising means for determining if

15   blends of different non-commodities from different sellers achieve a lower process

production or operating cost or range of desired operating characteristics, than

each of the different non-commodities alone, and if so, providing the buyer or at

least some of the sellers with a list of which blends of non-commodities achieve

the lower process cost or provide certain desired operating characteristics.

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12.   The system of claim 9 further comprising means for the plurality of

sellers provide to the network a current location of each non-commodity and

means for the buyer to provide to the network a location of the equipment and

wherein the estimation of process production or operating cost for each non-

5   commodity includes an estimated cost of transportation from the current location

of each non-commodity to the location of the equipment.

13.   An automated method for conducting buy and sell transactions for

coal over a network, comprising:

a plurality of sellers providing to the network physical and chemical

10   characteristics of coals available for sale and a cost of each coal, creating a

database of different coals;

a buyer providing to the network a performance simulation model of a

power production process in power generation equipment currently in operation or

intended to be in operation and with a desired amount of coal for use in the power

15   production process, the performance simulation model being able to estimate the

performance of the power production process based on chemical and physical

characteristics of coals, and project operating characteristics in terms of technical

risk or uncertainty associated with using different coals;

the buyer also providing a desired maximum power generation cost, and

desired operating characteristics of the power production process due to impacts of

coal composition; and

estimating the performance of the power production process for at least

5   some of the different coals from the database of different coals in the performance

simulation model to make a comparison of the at least some of the different coals

to determine which, if any, of the at least some of the different coals are within the

maximum power generation cost and desired range of operating characteristics;

providing the buyer with a list of coals that when utilized in given power

10   production equipment are within the desired maximum power generation cost and

operating characteristics due to coal composition impacts.

14.   The automated method of claim 13 further comprising providing the

buyer with a list of coals that when utilized for power production with a given set

of equipment provide for the lowest power generation cost and desired range of

15   operating characteristics.

15.   The automated method of claim 13 further comprising determining if

blends of different coals from different sellers achieve a lower power generation

cost than each of the different coals alone, or provide a certain type of operating

characteristic; and if so, providing the buyer or at least some of the sellers with a

list of which blends of coals achieve the lower power generation cost or provide a certain type of operating characteristic.

16.   The automated method of claim 13 wherein the plurality of sellers provide to the network a current location of each coal and the buyer provides to the network a location of the power generation equipment and wherein the estimation of power generation cost for each coal includes an identification of the least cost transportation method(s), and an estimated cost of transportation from the current location of each coal to the location of the power generation equipment.

17.   The automated method of claim 13 wherein the plurality of sellers also provide to the network a current location of each coal, an available amount of each coal, a period of availability for each coal and a cost of each coal at the current location of each coal.

18.   The automated method of claim 13 wherein the network is the Internet and wherein the chemical and physical characteristics of the coal comprise: ash content, volatile matter content, fixed carbon content, moisture content, heating value, sulfur content and ash chemistry.

19.   The automated method of claim 13 wherein the buyers also provide the network with a desired source of coal or provide the network with an indication of no preference as to the source of the coal.

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20.   The automated method of claim 13 further comprising utilizing a database describing the operation of the power generation equipment utilizing a coal ultimately selected, and in conjunction with standard datamining techniques defining trends in key operating variables for the coal ultimately selected, and

5   applying an analysis of operating data to refine a request-for-proposal for future purchases of coal.